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COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER	
STELLING, LUCAS A	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,753	DAINES ET AL.	
	Examiner	Art Unit	
	Lucas Stelling	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 09 July 2009.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 28,29,31-38,40,41,44-49,55 and 57-70 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 28, 29, 31-38, 40, 41, 44-49, 55,and 57-70 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7-9-09 has been entered.

Claim Objections

2. Claims 55 and 59 are objected to because of the following informalities: These claims depend from claim 71, which is not part of the claim set of 7-9-09, which applicant has provided for examination. It will be interpreted for purposes of examination that claims 55 and 59 depend from claim 70. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 58 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

possession of the claimed invention. There is no teaching in the originally filed disclosure on how the catalyst material is continuously regenerated.

5. Claim 64 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no teaching in the originally filed disclosure on basing the thickness of the membrane on the dimension of the catalyst.

6.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 28, 31, 33, 34, 38, 40, 44-49, 58, 59, 64-68, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,137,162 to Mohri et al. ("Mohri") in view of U.S. Patent No. 5,407,644 to Rytter et al. ("Rytter"), Cote, U.S. Patent No. 4,589,927 to Allen et al. ("Allen") and Bybel.

11. As to claim 65, Mohri teaches a method of treating an aqueous influent containing organic matter **(Mohri title and abstract)**, the method comprising:

injecting an oxidizing gas into a bottom portion of a vertical oriented column reactor **(Mohri col. 5 lines 52-54)**;

suspending a bed of catalyst material in the column reactor to form a fluidized bed of catalyst material in the reactor wherein at least a portion of the fluidized bed is disposed in the lower portion of the column reactor **(Mohri col. 2 lines 50-55, and col. 5 lines 24-30)**;

wherein the oxidizing gas injected into the column reactor functions to suspend the bed of catalyst material in the reactor **(Mohri col. 2 lines 10-20)** ;

injecting the influent to be treated into the bottom portion of the column reactor where the influent is contacted with the oxidizing gas in the presence of the fluidized bed of catalyst material **(Mohri col. 5 lines 20-25)**;

directing the treated influent from the reactor **(Mohri col. 5 lines 35-40)**;

retaining at least a second portion of the treated water such that the second portion of the treated water is non-permeated water and drawing off at least a portion of the non-permeated treated water from the upper portion of the column reactor, and providing water containing regenerated catalyst into the lower portion of the column reactor **(Mohri col. 8 and 9 and col. 5 lines 35-51; activated carbon particles will be drawn off with the water, regenerate and reuse).**

Mohri is different from claim 65 in that an immersed membrane filtration unit disposed in the upper portion of the column reactor which filters a portion of the treated water, after it was directing through the fluidized bed of catalyst material and oxidizing gas in the lower portion of the column reactor is not shown; Mohri also does not explicitly recite that the water bearing activated carbon which is drawn off on top is reused in a recirculating regeneration line; and Mohri does not contemplate the collection and recirculation of the oxidizing gas.

As to the use of a filter membrane being used to filter treated water from the catalyst, Rytter teaches the use of a fludized bed reactor in which gaseous reactants are bubbled through a slurry containing a catalytic material **(Rytter see in the Figures and abstract)**. Rytter explains that the filter facilitates the separation the products in the slurry from the catalyst, which catalyst is left behind for further reactions **(Rytter**

abstract and col. 4 lines 50-63; and col. 3 lines 15-20). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a liquid product filter in the bed reactor of Mohri in order to ensure that the catalyst material is retained in the reactor and is not drawn off the with products stream. With respect to type of filter element used, Rytter teaches the use of several different common filter elements **(Rytter col. 3 lines 8-10)**, but a membrane filter is not specifically mentioned. However, the purpose of filter is to filter off the products and to leave behind the catalyst **(See Rytter abstract)**, so a person of ordinary skill in the art would have known to choose a filter suited to filtering finely divided activated carbon catalyst -- Cote provides membrane filters in a reactor in order to separate treated liquid from liquid in the reactor which contains activated carbon **(Cote col. 7 lines 1-5, and col. 8 lines 55-60)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to choose a membrane filter element in the device of Mohri and Rytter in order to retain finely divided activated carbon catalyst. As to the location of the filter within the reactor, Rytter depicts the filter about the middle of the reactor, but a person of ordinary skill in the art at the time of invention would know to place the filter in the upper portion of the reactor, where the reactants, i.e. contaminated water, would have had ample opportunity to contact the catalyst and the oxidizing gas. Therefore, it would have been obvious to place the filter in the upper portion of the reactor.

As to the use of a liquid recirculation line, Allen teaches the use of a recirculation line in a fluidized bed reactor which allows for draws slurry from the top of the reactor

and reintroduces it into the bottom of the reactor **(Allen see 20 in the Figure)**. Allen explains that the use of the recirculation line increases reactor efficiency by allowing the reactor to run at high flow velocities by allowing multiple passes for reactions to occur **(See Allen col. 3 lines 10-20)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a recirculation line in the reactor of Mohri, Rytter and Cote in order to allow for multiple passes of slurry through the reactor, thereby allowing for a more complete reaction at high flow volumes.

As to the recirculation of oxidizing gas, Bybel teaches the recovery and reuse of ozone in a water treatment system **(Bybel See Fig. 1, and col. 3 lines 15-25)**. It would have been obvious to a person of ordinary skill in the art at the time of invention to reuse the unreacted ozone gas in order to conserve power needed to produce ozone.

12. As to claims 28 and 33, the catalyst material is activated carbon **(See Mohri abstract)**.

13. As to claim 31, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65 and Mohri teaches that the activated carbon granules are

14. As to claim 34, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and the membrane filters of Cote are microfiltration modules **(Cote see col. 12 lines 35-40)**.

15. As to claim 38, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, Cote teaches that the membrane filtration units are ozone-resistant organic membranes like PVDF or PTFE **(col. 4 lines 50-55)**.

16. As to claim 40, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and Mohri teaches that the oxidizing gas used is ozone **(Mohri col. 5 lines 50-55)**.

17. As to claim 44, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and the use of mechanical stirring is not required.

18. As to claims 45 and 46, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, but is silent as to the length of time the effluent is reacted in the ozone reaction chamber. It is within the understanding of a person of ordinary skill in the art that contact time with a catalyst is a result effective variable, based on the reactivity of the catalyst and the concentration of the constituents to be reacted. The residence time for the water to be treated may be adjusted either by controlling the flow rate through the reactor and the reactor length **(See col. 2 lines 20-34).** Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to optimize the dwell time of the effluent with that catalyst in Mohri, Rytter, Cote, Allen, and Bybel in order to fully oxidize all of the contaminants.

19. As to claims 47, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and Rytter teaches using a suction source for providing a pressure differential across the filter **(See 42 in Fig. 2)**. Rytter explains that the fluctuations in flow across the filter result in an anticlogging effect **(col. 5 lines 5-10)**. Therefor it would have been obvious to person of ordinary skill in the art at the time of invention to provide a suction source on the downstream side of the filter in order to produce fluctuations in the flow across the filter, which has an anticlogging effect. Also, it is within the skill and knowledge of a person of ordinary skill in the art to place the suction source outside the

reactor, for example on the drain tube **(See Rytter 25 and 24)**, in order to facilitate access the components in case they need to be monitored, repaired, or replaced.

20. As to claims 48 and 49, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 47, but a suction pressure is not explicitly mentioned in the Rytter reference. However, the pressure of the pump is related to the pressure differential across the filter, which in turn controls the anti-clogging effect. Therefore, the pressure is a result effective variable which controls the anti-clogging effect. *Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980)).*

21. As to claim 58, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and provide for continuously regenerating the catalyst **(Mohri col. 5 lines 38-40 and lines 49-50)**.

22. As to claim 66, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and because the catalyst material is located inside the reactor along with an immersed membrane filter, some of the catalyst will inherently be located on the surface of the membrane through which liquid passes.

23. As to claim 67, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and Cote shows the use of a series of membranes **(See Cote in the Figures)**. With respect to the function of the oxidizing gas, Mohri combines the gas with the inflent in order to fluidize the bed of catalytic material **(See abstract)**, and that the gas is an oxidant source **(See Mohri col. 5 lines 50-55)**. Rytter uses a gas in conjunction with a

catalyst containing slurry and a filter, and the gas provides for controlling clogging on the filter, as the gas **(See Rytter col. 5 lines 1-10)**.

24. As to claim 68, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65, and the incorporation of Rytter to Morhi would produce a single chamber column reactor as Mohri has only a single column, and Rytter is meant to place the filter module directly in the reaction portion of the column **(See Mohri and Rytter in the Figs.)**.

25. As to claim 70, Mohri teaches a system for treating an aqueous influent containing organic matter **(Mohri title and abstract)**, the system comprising:

a single chamber column reactor oriented in a vertical configuration and having a bottom portion and an upper portion **(Mohri 1)**;

an influent inlet formed in the bottom portion of the column reactor for permitting the influent to enter the bottom portion of the column reactor **(Mohri 4)**;

a fluid bed of catalyst material disposed in the column reactor where in a substantial portion of the fluid bed of catalyst material is disposed in the lower portion of the column reactor **(Mohri see in the Figure and col. 5 lines 25-30, L_2 shows the relative height of the fluidized bed of activated carbon)**;

an oxidizing gas inlet formed in the bottom portion of the column reactor for injecting an oxidizing gas into the bottom portion of the column reactor **(Mohri 10)**;

Mohri is different from claim 70 in that an immersed membrane filtration unit disposed in the upper portion of the column reactor; Mohri also does not explicitly recite

a water recirculation line; and Mohri does not contemplate the collection and recirculation of the oxidizing gas.

As to the use of a filter membrane being used to filter treated water from the catalyst, Rytter teaches the use of a fludized bed reactor in which gaseous reactants are bubbled through a slurry containing a catalytic material **(Rytter see in the Figures and abstract)**. Rytter explains that the filter facilitates the separation the products in the slurry from the catalyst, which catalyst is left behind for further reactions **(Rytter abstract and col. 4 lines 50-63; and col. 3 lines 15-20)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a liquid product filter in the bed reactor of Mohri in order to ensure that the catalyst material is retained in the reactor and is not drawn off the with products stream. With respect to type of filter element used, Rytter teaches the use of several different common filter elements **(Rytter col. 3 lines 8-10)**, but a membrane filter is not specifically mentioned. However, the purpose of filter is to filter off the products and to leave behind the catalyst **(See Rytter abstract)**, so a person of ordinary skill in the art would have known to choose a filter suited to filtering finely divided activated carbon catalyst -- Cote provides membrane filters in a reactor in order to separate treated liquid from liquid in the reactor which contains activated carbon **(Cote col. 7 lines 1-5, and col. 8 lines 55-60)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to choose a membrane filter element in the device of Mohri and Rytter in order to retain finely divided activated carbon catalyst. As to the location of the filter within the reactor, Rytter depicts the filter about the middle of the

reactor, but a person of ordinary skill in the art at the time of invention would know to place the filter in the upper portion of the reactor, where the reactants, i.e. the contaminated water in Mohri, would have had ample opportunity to contact the catalyst and the oxidizing gas. Therefore, it would have been obvious to place the filter in the upper portion of the reactor.

As to the use of a liquid recirculation line, Allen teaches the use of a recirculation line in a fluidized bed reactor which allows for draws slurry from the top of the reactor and reintroduces it into the bottom of the reactor **(Allen see 20 in the Figure)**. Allen explains that the use of the recirculation line increases reactor efficiency by allowing the reactor to run at high flow velocities by allowing multiple passes for reactions to occur **(See Allen col. 3 lines 10-20)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a recirculation line in the reactor of Mohri, Rytter and Cote in order to allow for multiple passes of slurry through the reactor, thereby allowing for a more complete reaction at high flow volumes.

As to the recirculation of oxidizing gas, Bybel teaches the recovery and reuse of ozone in a water treatment system **(Bybel See Fig. 1, and col. 3 lines 15-25)**. It would have been obvious to a person of ordinary skill in the art at the time of invention to reuse the unreacted ozone gas in order to conserve power needed to produce ozone.

26. As to claim 59, Mohri, Rytter, Cote, Allen, and Bybel teach the system of claim 70, and the amount of catalyst is known to those skilled in the art to determine the number of reactive sides provides to reactants. Therefore, it would have been obvious to control the concentration of activated carbon catalyst in the system of Mohri, Rytter,

Cote, Allen, and Bybel in order to provide adequate catalytic sites. *Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980)).*

27. As to claim 64, Mohri, Rytter, Cote, Allen, and Bybel teach the system of claim 70, but are silent as to the thickness of the membrane. However, membrane thickness is a result effective variable which partially determines its permeability. Since the catalyst is designed to be retained in the reactor, the thickness of the membrane would have to be chosen in order to maximize retention of the catalyst within the reactor. *Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980)).*

28. Claims 28, 29, 32, 55, 57,60- 63, 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohri, Rytter, Cote, Allen, and Bybel as applied to claims 65 and 28 in further view of U.S. Patent No. 4,923,843 to Saforo et al. ("Saforo").

29. As to claims 28 and 55, Rytter, Cote, Allen, and Bybel teaches the method of claims 65 and 70, but uses activated carbon, which in the opinion of the examiner constitutes a mineral material, but it is not explicitly contemplated as mineral material. Safaro teaches combining activated carbon with alumina in order to produce a more absorbent material which has a greater capability of absorbing non-polar organics and

polar impurities **(See Sarafo col. 1 lines 20-45 and col. 3 lines 15-20)**. Therefore, it would have been obvious to a person of ordinary skill in the art to combine alumina with the activated carbon in order to produce a more effective sorbent for differing types of impurities.

30. As to claim 29, Mohri, Rytter, Cote, Allen, Bybel and Safaro teaches the method of claim 28, and Safaro teaches using dopants, such as zeolites, which are known to contain metals, in order to change the properties of the catalyst **(Safaro col. 5 lines 49-54)**. Therefore, it would have been obvious to a person of ordinary skill in the art to add dopants in order to adjust the properties of the catalyst.

31. As to claims and 32, 62, and 63, Mohri, Rytter, Cote, Allen, Bybel teaches the method of claims 31 and 70, but only suggest 100μm as the lower limit for the particle size. Safaro teaches a catalyst with a varying sizes and particle sizes **(Safaro col. 8 lines 25-40)**. It is within the understanding of a person of ordinary skill in the art to use a fine mesh size in order to maximize the surface area of the catalyst material, however, Mohri, Rytter, Cote, Allen, and Bybel confines the treatment material to the treatment chamber, so the particle size must be larger than the pore size of the membrane filter in Cote. It is within the skill of a person of ordinary skill in the art to optimize the mesh size of the catalyst in order to maximize the reactive surface area and to ensure it is not transported through the filter. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide catalyst particles in the size of 10μm -- 40μm in order to maximize the reactive surface area and to confine the particles to the treatment chamber.

32. As to claims 69 and 60, Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 67 and 70, but do not suggest using bohmite alumina in the catalyst material. Safaro teaches combining activated carbon with boehmite alumina in order to produce a more absorbent material which has a greater capability of absorbing non-polar organics and polar impurities **(See Sarafo col. 1 lines 20-45, col. 3 lines 15-20, and col. 6 lines 25-30)**. Therefore, it would have been obvious to a person of ordinary skill in the art to combine boehmite alumina with the activated carbon in order to produce a more effective sorbent for differing types of impurities.

33. As to claim 57, Mohri, Rytter, Cote, Allen, Bybel, and Safaro teach the method of claim 55, and Mohri teaches using catalyst particles of 100μm and Safaro contemplates using particles of in the micron and submicron range **(See Mohri col. 3 lines 60-68; and see Safaro col. 8 lines 25-40)**.

34. As to claim 61, Mohri, Rytter, Cote, Allen, Bybel, and Safaro teach the system of claim 60, and Safaro teaches using dopants, such as zeolites, which are known to contain metals, in order to change the properties of the catalyst **(Safaro col. 5 lines 49-54)**. Therefore, it would have been obvious to a person of ordinary skill in the art to add dopants in order to adjust the properties of the catalyst.

35. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohri, Rytter, Cote, Allen, and Bybel as applied to claim 65 above and in further view of U.S. Patent No. 5,372,723 to de Geus et al. ("de Geus").

36. As to claims 35 and 36, Mohri, Rytter, Cote, Allen, and Bybel teaches the method of claim 65, but teaches that the filtration membranes are microfiltration membranes. Nanofiltration and ultrafilitration, as well as reverse osmosis, are substitutional equivalents in the field of water filtration when minute particles are to be removed **(de Geus abstract)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to substitute the microfiltration membrane of Cote with either a nanofiltration or ultrafiltration membrane in order to remove particulates of a particular minute size. See also MPEP 2144.06 (II).

37. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohri, Rytter, Cote, Allen, and Bybel as applied to claim 65 above and in further view of U.S. Patent No. 4,081,365 to White et al. ("White").

38. As to claim 37, Mohri, Rytter, Cote, Allen, and Bybel teache the method of claim 65 but does not teach the use of a mineral filtration unit. White teaches the use of a mineral filtration unit in association with an activated carbon bed **(White col. 3 lines 1-10)**. It is within the understanding of a person of ordinary skill in the art, and conventional to use a mineral filtration unit to adjust the mineral content of an effluent and to remove certain inorganic material. Therefore it would have been obvious to a person or ordinary skill in the art at the time of invention to further provide a mineral filtration unit in the device used in the method of Cote in order to adjust the mineral content and remove inorganic material.

39. Claims 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohri, Rytter, Cote, Allen, and Bybel as applied to claim 65 above and in further view of U.S. Patent Application Publication No. 2001/0022290 to Shiota et al. ("Shiota").

40. As to claim 41, over Mohri, Rytter, Cote, Allen, and Bybel teach the method of claim 65 but does not teach introducing H_2O_2 into the reactor. Shiota teaches using peroxide as an activated carbon catalyst oxidation treatment in order to increase the carbon catalytic activity in the presence of inorganic contaminants **(Shiota [0060] and [0063])**. Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to further add peroxide to the reactor in Cote in order to increase the catalytic activity of the activated carbon in the presence of inorganic contaminants.

Response to Arguments

Applicant's arguments with respect to claim 7-9-09 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Las 9-18-09

/Matthew O Savage/
Primary Examiner, Art Unit 1797